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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Takahiro Unno
Serial No: 10/054,604
Filed: 11/13/2001
Art Unit: 2655
Examiner: Opsasnich
Docket No.: TI-29771
Conf. No.: 7107
Customer No.: 23494

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FACSIMILE COVER SHEET

<input checked="" type="checkbox"/> FACSIMILE COVER SHEET (1 SHEET)	<input type="checkbox"/> AMENDMENT _____
<input type="checkbox"/> NEW APPLICATION	<input type="checkbox"/> EOT _____
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<input type="checkbox"/> ASSIGNMENT	<input checked="" type="checkbox"/> APPEAL <input type="checkbox"/> BRIEF (4 Pages)
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<input type="checkbox"/> CONTINUATION APP'N	
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NAME OF INVENTOR(S):	
Takahiro Unno	
TITLE OF INVENTION:	
Layered CELP System and Method	
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appl.No.: 10/054,604

Confirmation No.: 7107

Appellant: Unno

Filed: November 13, 2001

TC/AU: 2655

Examiner: Opsasnick

Docket: TI-29771

Cust.No.: 23494

APPELLANT'S BRIEF

Commissioner for Patents
P.O.Box 1450
Alexandria VA 22313-1450

Sir:

The attached sheets contain the Rule 41.37 items of appellant's brief. The Commissioner is hereby authorized to charge the fee for filing a brief in support of the appeal plus any other necessary fees to the deposit account of Texas Instruments Incorporated, account No. 20-0668. A fee transmittal sheet is enclosed.

Respectfully submitted,


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Rule 41.37(c)(1)(i) Real party of interest

Texas Instruments Incorporated owns the application.

Rule 41.37(c)(1)(ii) Related appeals and interferences

There are no related dispositive appeals or interferences.

Rule 41.37(c)(1)(iii) Status of claims

Claims 1-5 are pending in the application with all claims finally rejected. This appeal involves the finally rejected claims.

Rule 41.37(c)(1)(iv) Status of amendments

There is no amendment after final rejection.

Rule 41.37(c)(1)(v) Summary of claimed subject matter

The invention relates to layered speech encoding and decoding in which a base layer is a low resolution version and successive higher layers add more detail. Application Fig.1 shows a preferred embodiment layered encoder with perceptual filter ("PWFx") changes between levels (claim 1-3), and Fig.2a shows the corresponding prior art layered encoder (MPEG-4). Application page 6, section (3) describes the perceptual filters.

Application Fig.2b shows layered decoding with a generic post-filter. Application page 11, section (7) describes the preferred embodiment short-term post-filter as dependent upon the number of layers decoded (claim 4); and page 12, section (8) describes the preferred embodiment long-term post-filter (claim 5).

Rule 41.37(c)(1)(vi) Grounds of rejection to be reviewed on appeal

The grounds of rejection to be reviewed on appeal are:

(1) claims 1-5 were rejected as anticipated by the Das reference.

Rule 41.37(c)(1)(vii) Arguments

(1) Claims 1-5 were rejected as anticipated by Das.

With regard to claims 1-3, the Examiner cited Das col.4, lines 60-65 as base layer filtering, and Das col.7, lines 14-27 for a first enhancement layer perceptual filter.

Appellant replies that Das is not related to layered coding, and application Fig.2a is more relevant than Das. In particular, the cited Das col.4, lines 60-65 filter is just the LP analysis filter, not a perceptual filter as required by claim 1; cited Das col.7, lines 14-27 is just the pulse selection as part of residual quantization, not a perceptual filtering. Indeed, Das mentions perceptual weighting at col.7, lines 44 and 60 and col.8, lines 3-4, 7, and 24 but with no suggestion of claims 1-3. Lastly, Das column 10, lines 16-23 is explicitly not a layered coder in that a bit rate change means the coding is changed, not just including or omitting an enhancement layer. Consequently, Das does not suggest any of claims 1-3.

With regard to claims 4-5, the Examiner cited Das col.2, lines 5-27.

Appellant repeats the foregoing argument that Das is not related to layered coding. Appellant further replies that cited Das col.2, lines 5-27 is a general description of CELP coding but does not mention post-filtering. Thus Das does not suggest claims 4-5 which require layered coding with post-filtering limitations. Again, application Fig.2b is more relevant than Das.

Rule 41.37(c)(1)(viii) Claims appendix

1. A method of layered encoding, comprising:

- (a) applying a base layer perceptual filter to a signal to yield a base layer filtered signal;
- (b) finding a base layer estimate for said signal by base layer error minimization with said base layer filtered signal; and
- (c) finding a first enhancement layer estimate for said signal by error minimization with a first enhancement layer perceptual filter applied to an error in said base layer after inverse filtering with said base layer perceptual filter,
- (d) for $j = 2, \dots, N$, finding a j th enhancement layer estimate for said signal by error minimization with a j th enhancement layer perceptual filter applied to an error in said $(j-1)$ st enhancement layer after inverse filtering with said $(j-1)$ st enhancement layer perceptual filter, wherein at least one of said j th enhancement layer perceptual filters is weaker than said base layer perceptual filter.

2. The method of claim 1, wherein:

- (a) said estimates are synthesis filtered CELP excitations.

3. A layered encoder, comprising:

- (a) an estimator for each layer of a layered encoder; and
- (b) perceptual filters including inverse filters for each layer, wherein at least one of said layer perceptual filters is weaker than another of said layer perceptual filters.

4. A method of decoding a layered encoded signal, comprising:

- (a) applying a short-term postfiltering to a synthesized layered encoded signal wherein the short-term postfiltering differs for at least two of the number of layers decoded to form said synthesized layered encoded signal.

5. A method of decoding a layered encoded signal, comprising:

(a) applying a long-term postfiltering to a synthesized layered encoded signal wherein the long-term postfiltering is independent of the number of layers decoded to form said synthesized layered encoded signal.

Rule 41.37(c)(1)(ix) Evidence appendix

n/a

Rule 41.37(c)(1)(x) Related proceedings appendix

n/a